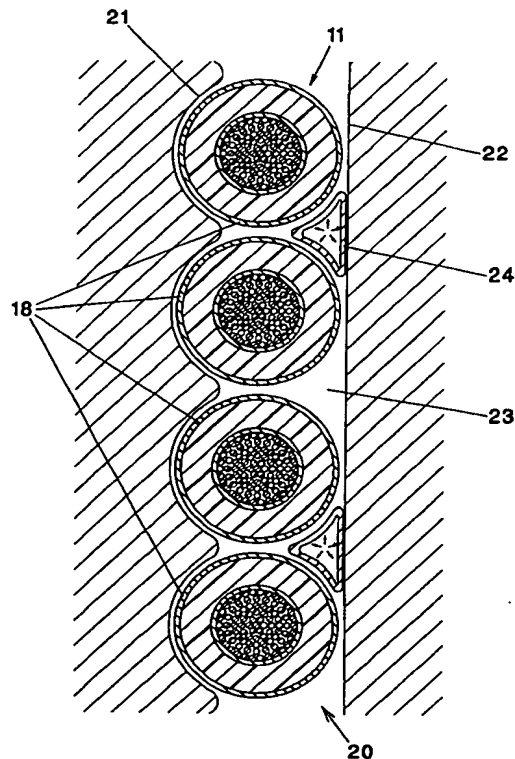




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H02K 3/24, 3/48	A1	(11) International Publication Number: WO 99/31781 (43) International Publication Date: 24 June 1999 (24.06.99)
(21) International Application Number: PCT/SE98/02162 (22) International Filing Date: 27 November 1998 (27.11.98) (30) Priority Data: 9704380-6 27 November 1997 (27.11.97) SE (71) Applicant (for all designated States except US): ASEA BROWN BOVERI AB [SE/SE]; S-721 83 Västerås (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): LARSSON, Bertil [SE/SE]; Sammetsvägen 12, S-724 76 Västerås (SE). ROTHMAN, Bengt [SE/SE]; Profilgatan 16, S-723 36 Västerås (SE). (74) Agents: KARLSSON, Leif et al.; L.A. Groth & Co. KB, P.O. Box 6107, S-102 32 Stockholm (SE).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>In English translation (filed in Swedish).</i>
(54) Title: A METHOD OF APPLYING A TUBE MEMBER IN A STATOR SLOT IN A ROTATING ELECTRICAL MACHINE		
(57) Abstract A method for mounting a tube member (24) in a space (23) having a shape corresponding to the shape of the tube member (24), the tube member (24) being inserted into the space (23), after which a pressure medium is heated and pressurises the tube member (24) so that this softens and expands, its outer periphery assuming the shape of the limiting areas of space (23), after which the hot pressure medium is replaced with or converted to a cold pressure medium which fills out the expanded tube member (24) and causes it to solidify and permanently assume this expanded shape, and also a rotating electric machine arranged in accordance with the method.		



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
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CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 98/02162

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H02K 3/24, H02K 3/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H02K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5587126 A (C.H. STEKETEE, JR.), 24 December 1996 (24.12.96), column 9, line 56 - line 67 --	1
A	FR 2556146 A1 (SOCIETE DE PARIS ET DU RHONE), 5 December 1983 (05.12.83), abstract --	1-13
P,A	WO 9745935 A1 (ASEA BROWN BOVERI AB), 4 December 1997 (04.12.97), abstract -- -----	1-13

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

19 March 1999

Date of mailing of the international search report

25-03-1999

Name and mailing address of the ISA/
Swedish Patent Office
Box 5055, S-102 42 STOCKHOLM
Facsimile No. +46 8 666 02 86

Authorized officer

Hans Bagge af Berga
Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 96/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5587126 A	24/12/96	US 5589131 A	31/12/96
		AT 86289 A	15/10/94
		AT 399551 B	26/06/95
		AU 638206 B	24/06/93
		AU 662395 B	31/08/95
		AU 3265089 A	19/10/89
		AU 3536093 A	20/05/93
		BE 1002158 A	14/08/90
		CA 1337892 A	09/01/96
		CH 683122 A	14/01/94
		DE 3912205 A,C	26/10/89
		DK 174689 A	14/10/89
		FI 94283 B,C	28/04/95
		FI 891714 A	14/10/89
		FR 2630185 A	20/10/89
		GB 2218490 A,B	15/11/89
		GB 2251471 A,B	08/07/92
		GB 2251472 A,B	08/07/92
		HK 102293 A	08/10/93
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		IE 73221 B	07/05/97
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		MX 171661 B	10/11/93
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		NL 8900922 A	01/11/89
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		GB 2208311 A,B	22/03/89
		HK 102292 A	24/12/92
		JP 1042220 A	14/02/89
		JP 2640103 B	13/08/97
		MX 166715 B	29/01/92
		NL 8702054 A	16/02/89
		NO 174069 C	09/03/94
		SE 502649 C	04/12/95

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 98/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9745935 A1	04/12/97	AU 2987397 A	05/01/98
		AU 2987597 A	05/01/98
		AU 2987997 A	05/01/98
		AU 2988097 A	05/01/98
		AU 2988197 A	05/01/98
		AU 2988297 A	05/01/98
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		SE 9804078 D	00/00/00
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		WO 9745915 A	04/12/97
		WO 9745916 A	04/12/97
		WO 9745918 A	04/12/97
		WO 9745919 A	04/12/97
		WO 9745920 A	04/12/97
		WO 9745921 A	04/12/97
		WO 9745922 A	04/12/97
		WO 9745923 A	04/12/97

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 98/02162

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
WO	9745935	A1	04/12/97	WO	9745924 A	04/12/97
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				WO	9745926 A	04/12/97
				WO	9745927 A	04/12/97
				WO	9745928 A	04/12/97
				WO	9745929 A	04/12/97
				WO	9745930 A	04/12/97
				WO	9745931 A	04/12/97
				WO	9745932 A	04/12/97
				WO	9745933 A	04/12/97
				WO	9745934 A	04/12/97
				WO	9745936 A	04/12/97
				WO	9745937 A	04/12/97
				WO	9745938 A	04/12/97
				WO	9745939 A	04/12/97
				WO	9747067 A	11/12/97
				SE	9602085 D	00/00/00
				SE	9700362 A	30/11/97
				SE	9604031 A	05/05/98
				AU	2048697 A	01/10/97
				EP	0886949 A	30/12/98
<hr/>						

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 98/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5587126 A	24/12/96	SE 8703214 A	29/01/89
		US 4867921 A,B	19/09/89
		AU 7079387 A	08/10/87
		GB 2188695 A	07/10/87

FR 2556146 A1	05/12/83	NONE	

Copy for the Elected Office (EO/US)
PATENT COOPERATION TREATY

PCT/SE98/02162

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

KARLSSON, Leif
L.A. Groth & Co. KB
P.O. Box 6107
S-102 32 Stockholm
SUÈDE

Date of mailing (day/month/year) 24 September 1999 (24.09.99)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference P 98-578/AE	
International application No. PCT/SE98/02162	International filing date (day/month/year) 27 November 1998 (27.11.98)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address

ASEA BROWN BOVERI AB
S-721 83 Västerås
Sweden

State of Nationality

SE

State of Residence

SE

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

ABB AB
S-721 83 Västerås
Sweden

State of Nationality

SE

State of Residence

SE

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☒ the International Preliminary Examining Authority ☐ other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Dorothee Mülhausen Telephone No.: (41-22) 338.83.38
---	--

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 August 1999 (12.08.99)	Applicant's or agent's file reference P 98-578/AE
International application No. PCT/SE98/02162	Priority date (day/month/year) 27 November 1997 (27.11.97)
International filing date (day/month/year) 27 November 1998 (27.11.98)	
Applicant LARSSON, Bertil et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
23 June 1999 (23.06.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Jean-Marie McAdams

Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

2000 -04- 18

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 98-578 AE/uh	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE98/02162	International filing date (day/month/year) 27.11.1998	Priority date (day/month/year) 27.11.1997
International Patent Classification (IPC) or national classification and IPC ₇ H 02 K 3/24, H 02 K 3/48		
Applicant ABB AB et al		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input checked="" type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input checked="" type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 23.06.1999	Date of completion of this report 12.04.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Hans Bagge af Berga/mj Telephone No. 08-782 25 00

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☒ the international application as originally filed.
- ☐ the description, pages _____, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.
- ☐ the claims, Nos. _____, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. _____, filed with the letter of _____,
 Nos. _____, filed with the letter of _____.
- ☐ the drawings, sheets/fig _____, as originally filed,
 sheets/fig _____, filed with the demand
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

II. Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested.
- ☐ copy of the earlier application whose priority has been claimed.
- ☐ translation of the earlier application whose priority has been claimed.

2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid.

Thus for the purpose of this report, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

The priority is valid and therefore document WO, A1 9745935 is of no relevance.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1-19</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-19</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-19</u>	YES
	Claims		NO

2. Citations and explanations

The claimed invention concerns a method for mounting a tube member in a space with a shape corresponding to the shape of the tube member. The claimed invention also concerns a rotating electrical machine equipped with said tube member. The tube member is inserted into the space, then a pressure medium is heated and pressurises the tube member so that it softens and expands and so that its outer periphery assumes the shape of the limiting areas of the space. The expanded shape of the tube member is permanentized by replacing the hot pressure medium with or converting it to a cold pressure medium. The tube member is then used as a cooling tube.

The claimed invention overcomes problems associated with previous solutions such as induced eddy currents in cooling tubes made of metal and mechanical problems connected with axial cooling ducts.

Documents cited in the International Search Report

D1	US, A, 5 587 126
D2	FR, A1, 2 556 146
D3	WO, A1, 9745935

These documents are considered to show the general state of the art, which is not considered to be of particular relevance to the claimed invention.

.../...

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

Document D3 is not relevant in this International Preliminary Examination Report because the priority claimed for this International Patent Application is valid.

Claims 1-19

Claims 1 and 4

Neither one of the cited documents, taken alone or in combination, reveals the invention defined in independent claims 1 and 4. Furthermore, in the cited documents there is no information leading a person skilled in the art towards the invention defined by independent claims 1 and 4.

Therefore, the invention according to claims 1 and 4 is not considered obvious to a person skilled in the art and consequently is considered to involve an inventive step.

Claims 2-3 and 5-19

Claims 2-3 and 5-19 are dependent claims to claims 1 and 4, respectively. Consequently, bearing in mind the argumentation regarding claims 1 and 4, the invention according to claims 2-3 and 5-19 fulfils the requirement of inventive step (IS).

Conclusion

The invention defined in claims 1-19 fulfils the requirement of novelty (N) and is considered to involve an inventive step (IS). The invention defined in claims 1-19 has industrial applicability (IA).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO, A1, 9745935	04.12.1997	27.05.1997	27.11.1997

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure

Date of non-written disclosure
(day/month/year)Date of written disclosure
referring to non-written disclosure
(day/month/year)

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P 98-578/AE	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/SE 98/02162	International filing date (day/month/year) 27 November 1998	(Earliest) Priority Date (day/month/year) 27 November 1997
Applicant Asea Brown Boveri AB et al.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
2. ☐ Unity of invention is lacking (See Box II).
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing
 - ☐ filed with the international application.
 - ☐ furnished by the applicant separately from the international application,
 - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
 - ☐ transcribed by this Authority.
4. With regard to the title, ☐ the text is approved as submitted by the applicant.
☒ the text has been established by this Authority to read as follows:

A method of applying a tube member in a stator slot in a rotating electrical machine.
5. With regard to the abstract,
 - ☒ the text is approved as submitted by the applicant.
 - ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:
Figure No. 4 ☒ as suggested by the applicant. ☐ None of the figures.
☐ because the applicant failed to suggest a figure.
☐ because this figure better characterizes the invention.

1
INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 98/02162

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H02K 3/24, H02K 3/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H02K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5587126 A (C.H. STEKETEE, JR.), 24 December 1996 (24.12.96), column 9, line 56 - line 67 --	1
A	FR 2556146 A1 (SOCIETE DE PARIS ET DU RHONE), 5 December 1983 (05.12.83), abstract --	1-13
P,A	WO 9745935 A1 (ASEA BROWN BOVERI AB), 4 December 1997 (04.12.97), abstract -----	1-13

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

19 March 1999

Date of mailing of the international search report

25-03-1999

Name and mailing address of the ISA/

Swedish Patent Office

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INTERNATIONAL SEARCH REPORT
Information on patent family members

02/03/99

International application No.
PCT/SE 98/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		AU 638206 B	24/06/93
		AU 662395 B	31/08/95
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		AU 3536093 A	20/05/93
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INTERNATIONAL SEARCH REPORT
Information on patent family members

02/03/99

International application No.

PCT/SE 98/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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FR 2556146 A1	05/12/83	NONE	
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INTERNATIONAL SEARCH REPORT
Information on patent family members

02/03/99

International application No.
PCT/SE 98/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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INTERNATIONAL SEARCH REPORT
Information on patent family members

02/03/99

International application No.

PCT/SE 98/02162

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9745935 A1	04/12/97	WO 9745924 A	04/12/97
		WO 9745925 A	04/12/97
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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

16
REC'D 25 APR 2000

PCT

Applicant's or agent's file reference P 98-578 AE/uh	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/SE98/02162	International filing date (day/month/year) 27.11.1998	Priority date (day/month/year) 27.11.1997
International Patent Classification (IPC) or national classification and IPC ₇ H 02 K 3/24, H 02 K 3/48		
Applicant ABB AB et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☒ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 23.06.1999	Date of completion of this report 12.04.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer Hans Bagge af Berga/mj Telephone No. 08-782 25 00

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☒ the international application as originally filed.
- ☐ the description, pages _____, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.
- ☐ the claims, Nos. _____, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. _____, filed with the letter of _____,
 Nos. _____, filed with the letter of _____.
- ☐ the drawings, sheets/fig _____, as originally filed,
 sheets/fig _____, filed with the demand
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

II. Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed.
 - ☐ translation of the earlier application whose priority has been claimed.
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid.

Thus for the purpose of this report, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

The priority is valid and therefore document WO, A1 9745935 is of no relevance.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-19</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-19</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-19</u>	YES
	Claims	_____	NO

2. Citations and explanations

The claimed invention concerns a method for mounting a tube member in a space with a shape corresponding to the shape of the tube member. The claimed invention also concerns a rotating electrical machine equipped with said tube member. The tube member is inserted into the space, then a pressure medium is heated and pressurises the tube member so that it softens and expands and so that its outer periphery assumes the shape of the limiting areas of the space. The expanded shape of the tube member is permanentized by replacing the hot pressure medium with or converting it to a cold pressure medium. The tube member is then used as a cooling tube.

The claimed invention overcomes problems associated with previous solutions such as induced eddy currents in cooling tubes made of metal and mechanical problems connected with axial cooling ducts.

Documents cited in the International Search Report

D1 US, A, 5 587 126
D2 FR, A1, 2 556 146
D3 WO, A1, 9745935

These documents are considered to show the general state of the art, which is not considered to be of particular relevance to the claimed invention.

.../...

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

Document D3 is not relevant in this International Preliminary Examination Report because the priority claimed for this International Patent Application is valid.

Claims 1-19*Claims 1 and 4*

Neither one of the cited documents, taken alone or in combination, reveals the invention defined in independent claims 1 and 4. Furthermore, in the cited documents there is no information leading a person skilled in the art towards the invention defined by independent claims 1 and 4.

Therefore, the invention according to claims 1 and 4 is not considered obvious to a person skilled in the art and consequently is considered to involve an inventive step.

Claims 2-3 and 5-19

Claims 2-3 and 5-19 are dependent claims to claims 1 and 4, respectively. Consequently, bearing in mind the argumentation regarding claims 1 and 4, the invention according to claims 2-3 and 5-19 fulfils the requirement of inventive step (IS).

Conclusion

The invention defined in claims 1-19 fulfils the requirement of novelty (N) and is considered to involve an inventive step (IS). The invention defined in claims 1-19 has industrial applicability (IA).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/SE98/02162

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO, A1, 9745935	04.12.1997	27.05.1997	27.11.1997

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)